

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (Currently amended) A control valve for controlling flow of hydraulic fluid, the control valve comprising:

a valve housing;

a sleeve slidable in a valve chamber in the valve housing;

a first fluid conduit for connecting the valve chamber to a source of pressurised hydraulic fluid;

a second fluid conduit for connecting the valve chamber to a fluid return for returning hydraulic fluid to a reservoir;

a third fluid conduit for connecting the valve chamber to deliver hydraulic fluid to and receive hydraulic fluid from apparatus which uses the hydraulic fluid flow controlled by the control valve, wherein:

the sleeve is a tubular sleeve having a tubular passage therethrough;

the valve housing has a pair of spaced apart valve seat surfaces, a first valve seat surface which is engageable by a first annular end surface of the tubular sleeve and a second valve seat surface which is engageable by a second annular end surface of the tubular sleeve;

the third fluid conduit opens on to the valve chamber by way of a port which is surrounded by the first valve seat surface; and

when the first annular end surface of the tubular sleeve engages the first valve seat surface then fluid flows through the tubular passage in the sleeve from the third fluid conduit to the second fluid conduit and when the second annular end surface of the tubular sleeve engages the second valve seat surface then fluid flows through a gap between the first end of the tubular sleeve and the first valve seat to the third fluid conduit from the first fluid conduit[[]]; wherein:

a spring means biases the sleeve into engagement with the first valve seat surface;
characterised in that:

the spring means acts directly on the sleeve;

the tubular sleeve is connected by a rod to an armature located outside the valve chamber, the armature being located within an electrical coil also located outside the valve chamber;

the spring means comprises a spring which acts between a spring seat provided in the valve housing and a spring seat fixed to the exterior of the sleeve; and

the only forces applied to the rod are forces which place the rod in tension, the spring acting to move the sleeve into engagement with the first valve seat surface.

Claim 2 (Currently amended) A control valve for controlling flow of hydraulic fluid, the control valve comprising:

a valve housing;

a sleeve slidable in a valve chamber in the valve housing;

a first fluid conduit for connecting the valve chamber to a source of pressurised hydraulic fluid;

a second fluid conduit for connecting the valve chamber to a fluid return for returning hydraulic fluid to a reservoir;

a third fluid conduit for connecting the valve chamber to deliver hydraulic fluid to and receive hydraulic fluid from apparatus which uses the hydraulic fluid flow controlled by the control valve, wherein:

the sleeve is a tubular sleeve having a tubular passage therethrough;

the valve housing has a pair of spaced apart valve seat surfaces, a first valve seat surface which is engageable by a first annular end surface of the tubular sleeve and a second valve seat surface which is engageable by a second annular end surface of the tubular sleeve;

the third fluid conduit opens on to the valve chamber by way of a port which is surrounded by the first valve seat surface; and

when the first annular end surface of the tubular sleeve valve engages the first valve seat surface then fluid flows through the tubular passage in the sleeve to the third fluid conduit from the first conduit and when the second annular end surface of the tubular sleeve engages the second valve seat surface then fluid flows through a gap between the first end of the tubular sleeve and the first valve seat from the third fluid conduit to the second fluid conduit; wherein:

a spring means biases the sleeve into engagement with the first valve seat surface; characterised in that:

the spring means acts directly on the sleeve;

the tubular sleeve is connected by a rod to an armature located outside the valve chamber, the armature being located within an electrical coil also located outside the valve chamber;

the spring means comprises a spring which acts between a spring seat provided in the valve housing and a spring seat fixed to the exterior of the sleeve; and

the only forces applied to the rod are forces which place the rod in tension, the spring acting to move the sleeve into engagement with the first valve seat surface.

Claims 3-4 (Cancelled)

Claim 5 (Currently amended) A control valve as claimed in ~~claim 3~~ claim 1 wherein the spring means applies a preload on the sleeve which must be overcome by a magnetic force applied to the armature by a magnetic field generated by the electrical coil before the sleeve moves away from the first valve seat surface.

Claim 6 (Previously presented) A control valve as claimed in claim 1 wherein a compliant seal is provided to act between the exterior of the tubular sleeve and facing surface of the valve housing in order to prevent fluid passing along the outside of the tubular sleeve between the first and second fluid conduits and wherein the compliant seal deforms when the sleeve slides in the valve chamber so as to reduce or prevent sliding contact between the sleeve and the compliant seal.

Claim 7 (Currently amended) A control valve as claimed in claim 1 wherein the first fluid conduit opens on to the valve chamber by way of a gallery which surrounds [[the]] a first end of the tubular sleeve valve proximate the first annular end surface.

Claim 8 (Currently amended) A control valve as claimed in claim 1 wherein the second fluid conduit opens on to the valve chamber by way of a gallery which surrounds [[the]] a second end of the tubular sleeve valve proximate the second annular end surface.

Claim 9 (Previously presented) A control valve as claimed in claim 1 wherein the tubular sleeve valve has a tubular wall which tapers in thickness at both ends of the tubular sleeve valve.

Claim 10 (Previously presented) A control valve system for controlling a hydraulic actuator which has a control valve as claimed in claim 1, wherein the control valve is operated as a digital valve with rate of fluid flow through the control valve varied by controlling a timing of switching of the sleeve between engagement with the first and second valve seats.

Claims 11-13 (Cancelled)

Claim 14 (Currently amended) A control valve as claimed in ~~claim 11~~ claim 2 wherein the spring means applies a preload on the sleeve which must be overcome by a magnetic force applied to the armature by a magnetic field generated by the electrical coil before the sleeve moves away from the first valve seat surface.

Claim 15 (Previously presented) A control valve as claimed in claim 2 wherein a compliant seal is provided to act between the exterior of the tubular sleeve and facing surface of the valve housing in order to prevent fluid passing along the outside of the tubular sleeve between the first and second fluid conduits and wherein the compliant

seal deforms when the sleeve slides in the valve chamber so as to reduce or prevent sliding contact between the sleeve and the compliant seal.

Claim 16 (Currently amended) A control valve as claimed in claim 2 wherein the first fluid conduit opens on to the valve chamber by way of a gallery which surrounds ~~the first~~ a second end of the tubular sleeve valve proximate the second annular end surface.

Claim 17 (Currently amended) A control valve as claimed in claim 2 wherein the second fluid conduit opens on to the valve chamber by way of a gallery which surrounds ~~the second~~ a first end of the tubular sleeve valve proximate the first annular end surface.

Claim 18 (Previously presented) A control valve as claimed in claim 2 wherein the tubular sleeve valve has a tubular wall which tapers in thickness at both ends of the tubular sleeve valve.

Claim 19 (Previously presented) A control valve system for controlling a hydraulic actuator which has a control valve as claimed in claim 2, wherein the control valve is operated as a digital valve with rate of fluid flow through the control valve varied by controlling a timing of switching of the sleeve between engagement with the first and second valve seats.

Claims 20-31 (Cancelled)